

Appl. No. 09/705,572
Amdt. Dated January 13, 2004
Reply to Office action of: October 4, 2004

REMARKS/ARGUMENTS

In the office action dated October 4 2004, the Examiner rejected Claims 1-45. In this response, claims 6, 7, 13-16, 18-19, 24-26, 30-31, 33, 38-39 and 44 have been amended. The Applicants request that claims 8, 11, and 40 be cancelled without prejudice. The Applicants respectfully request reconsideration of the application by the Examiner in light of the following remarks.

Claim Objections

Claims 6-8, 18, 19 and 44 were objected to based on one or more informalities present in each of these claims. The presence of such informalities was inadvertent and is regretted. The Applicants thank the Examiner for highlighting these informalities and have taken steps to correct them. Claims 6, 7, 18, 19 and 44 have been amended as follows and claim 8 has been cancelled.

Claim 6: The word "process" has been replaced by the word processing.

Claim 7: The term "computer aided design" has been added parenthetically after the acronym "CAD".

Claim 18: Variables referring to Equation (2) (page 10) have been deleted from the claim.

Claim 19: Variables referring to Equation (1) (page 10) have been deleted from the claim.

Claim 44: The claim has been amended to depend from claim 43 instead of claim 42.

Rejections under 35 U. S. C 112

Claims 7-8, 11, 14-16, 18, 24-28 and 38-40 were rejected under 35 U. S. C 112, second paragraph. Claims 8 and 11 were rejected for the improper recitation of a trademark within a claim. Claims 8 and 11 have been cancelled.

Claim 7 has been amended to recite "wherein said part geometry imported to said computer", a phrase which finds ample antecedent basis in claims 1 and 5.

Claim 14 has been amended to recite "wherein said computer" instead of "wherein said computer 16".

Claim 15 has been amended to recite "the fabricated part" instead of "the part design".

Claim 16 has been amended to recite "said fabricated part" instead of "said part design".

Claim 16 has been further amended to recite "a modified set of inputs is presented" instead of "said inputs need modification". Antecedent basis for this amendment to claim 16 can be found in Figure 2 (see item labeled 126) and in the specification at page 9 lines 25-28 and page 10 lines 1-3.

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Claim 18 has been amended to recite "a time step size" instead of "the time step size".

Claim 24 has been amended to recite "a set of all temperature steps in said thinwall prediction" instead of "all of the temperature steps".

Claim 25 has been amended to recite "if said set of all temperature steps" instead of "if all of the temperature steps". Antecedent basis for the amendment can be found at page 12 line 15 of the specification and in Figure 3.

Claim 25 has been further amended to recite "a next temperature step" instead of "the next temperature step".

Claim 26 has been amended to recite "a mold" instead of "the mold".

Claims 27 and 28 may rely on amended claim 26 to provide antecedent basis for "the mold".

Claim 28 has been amended to recite "a post-processing is done" instead of "the process continues to post-processing".

Claim 38 has been amended to recite "said rheological degradation data" instead of "said database rheological degradation data".

Claim 39 has been amended to recite "a viscosity ratio" instead of "the viscosity ratio".

Claim 39 has also been amended to correct punctuation (missing semicolon).

Claim 40 has been cancelled.

Rejections under 35 U. S. C 101

Claims 34 and 35 were rejected under 35 USC 101 as allegedly being directed to non-statutory subject matter. The Applicants respectfully traverse the rejection.

As per MPEP section 2106 relating to computer related inventions, the claimed invention as a whole must accomplish a practical application. The method described in claims 34 and 35 are not merely computer programs. The method claimed in claim 34 generates a predicted performance for a fabricated part wherein the program does not merely manipulate data, but the program predicts the performance of fabricated parts by taking input parameters and generating a prediction. This computer generated prediction accomplishes a practical application in that it reduces the trial and error involved in the fabrication of molded articles. Therefore for the reasons discussed above, the Applicants submit that claim 34 is allowable. Claim 35 depends directly from claim 34. The Applicants respectfully submit therefore that Claim 34 is similarly allowable for the reasons discussed above.

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Rejections under 35 U. S. C 103

Claims 1-45 have been rejected as being unpatentable over Coe et al. (US patent No 5,136,497) in view of Davidson (US Pub No 2002/0107676). The Applicants respectfully traverse these rejections.

For an obviousness rejection to be proper, the Examiner must establish a prima facie case of obviousness (In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988)). Coe et al. disclose a materials consolidation control system (MCCS) for the design and evaluation of material consolidation processes. The MCCS provides for user interactive, on-line control of product properties through a combination of on-site sensors and process/component simulation output. In a preferred embodiment of the MCCS, the system is set up to simulate and control consolidation of powder materials using hot isostatic processing (HIP).

The process control system as described by Coe et al. involves a hierarchical control system comprising a PID feedback loop. A MCCS feedforward loop is also provided. As shown in Fig1a of the Coe reference the MCCS computer 10 is designed to receive process sensor data 20 and then provide process control parameters 22 to a PID controller 24. The PID controller performs proportional, integral, and derivative calculations of the scheduled input to derive control signals 26. The control signals 26 are then provided to a heater and pump (not shown) located in HIP chamber 28. Clearly, Coe et al. describe a process control system, which collects on-line data to complete the control process.

In the present application, the simulation system involves predicting performance of a fabricated part. In independent claims 1, 34, 43 and 45, simulation systems or methods are claimed for generating a predicted performance for fabricated parts, the systems comprising a rheological degradation database for storing a plurality of rheological degradation data for associated materials; a mechanical degradation database for storing a plurality of mechanical degradation data for associated materials; a computer coupled to said rheological degradation database and said mechanical degradation database for computing part performance predictions for a respective material with a predetermined geometry under predetermined processing conditions, partially based on said rheological degradation data and said mechanical degradation data. Therefore the prediction is purely based on data from the two preexisting databases. Unlike Coe et al., no on-line data is collected to complete the control process.

Coe et al. neither disclose nor suggest predicting fabricated part performance using information stored in databases. As noted, the systems described by Coe et al. rely on "on-line" data collected from the process.

Davidson discloses a method for analyzing or designing a fluid extrusion device using a computer system by inputting fluid rheological data and extrusion device data into the computer system, the computer system having Computational Fluid Dynamics (CFD) numerical algorithms and a user interface, computing flow

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characteristics of the extrusion device, and extracting data relating to the flow characteristics. Davidson cannot be read to supply the rheological degradation database and mechanical degradation database lacking in the primary reference and required in order to establish a prima facie case of obviousness.

Because the Coe and Davidson references either singly or in combination neither disclose nor suggest the present invention the Applicants respectfully submit that claims 1, 34, 43 and 45 define allowable subject matter over Coe et al. in view of Davidson. Claims 2-7, 9-10, 12-33, 35-39, 41-42 and 44-45 depend directly or indirectly from independent claims 1, 34, 43 and 45 are thus as allowable as claims dependent upon allowable independent claims. Thus, the Applicants respectfully request that the rejection of claims 1-45 under 35 USC 103(a) be withdrawn.


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Summary

Accordingly, the Applicants respectfully submit that the claimed invention defines allowable subject matter over the applied prior art. Withdrawal of the rejections is respectfully requested, and allowance of the claims is courteously solicited. Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,

By


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